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Computerized Analysis of Narrativity in Online Reviews

[Blank line to enter author name/s and affiliation/s upon acceptance]

Short Abstract:
Whether reviewing material or experiential purchases, online consumer reviews are the most influential form of word-of-mouth after recommendations from family and friends. Despite their relevance, extant contributions largely ignore reviews of experiential purchases. Taking a narratological perspective, this article distinguishes between elements of narrative content and narrative expression, the “what” and “how” of storytelling and experience reviews. The authors integrate narrative content elements derived from previous literature, conceptualize genre as a narrative expression element whose changing emotions create five story shapes, and conceive drama as a narrative expression element with climactic emotions in one of two possible locations. The authors test the persuasive effects of the elements with a computerized text analysis of 190,461 reviews of 989 experiences on TripAdvisor. Beyond the narrative content elements, the narrative expression elements contribute to additional variance in narrative persuasion.

Keywords: computational linguistics, experience, narrativity

Introduction and Research Aim

Prior research shows that experience reviews are narrative (Jurafsky, Chahuneau, Routledge, & Smith, 2014) and that their narrativity is likely to persuade consumers (Pechmann & Wang, 2010). Questions remain however as to how such texts achieve narrativity. Many studies show that a mental visit to the narrative world (i.e., narrative transportation) affects consumer behaviour (Van Laer, de Ruyter, Visconti, & Wetzels, 2014). Empathy (Slater & Rouner, 2002) and mental imagery (Green & Brock, 2002). Storytellers use narrative content elements like characters and plot to help consumers become transported into stories. However, most reviewers do not persuade consumers by adding characters and events to the story *in extremis*. What causes consumers to stay transported in and become persuaded by the narrative world remains to be seen. We ask and answer what narrative elements underlie the conversion of entering the narrative world into becoming persuaded. In doing so, we distinguish between elements of narrative content and elements of narrative expression. Whereas narrative content elements convey what a story is telling, narrative expression elements reflect how the story is told. This distinction allows us to make three contributions to the narratology and word-of-mouth (WOM) language literature streams: (1) we integrate and externally validate a comprehensive set of narrative content-related textual elements' effects on narrative persuasion by taking a custom computational linguistics-based pathway; (2) we conceptualize genre as a narrative expression element and test how genres' emotional changes explain additional variance in narrative persuasion, distinguishing the effects of five story shapes; and (3) we conceive drama as the location of the most intense emotional climax on a story line and assess how this narrative expression element further affects narrative persuasion. To investigate these relationships in the context of experience reviews, we use a multimethod approach.

Conceptual Model

To understand how an experience review can deeply affect consumer attitudes and intentions, we conceptually break down its narrative content—characters and plot—and expression elements—genre and drama. We review two elements of characters that can affect narrative persuasion (landscape of affective consciousness and landscape of cognitive consciousness) and two elements of plot that can do likewise (spatial embedding and temporal embedding). The effects of these narrative content elements have been established previously (Dunlop, Wakefield, & Kashima, 2010; Kaufman & Libby, 2012); we aim to replicate them with an innovative, linguistic technique. We also highlight five genres (progressive, regressive, stable, comedy, and tragedy), which may persuade consumers to different degrees because they change the emotional story shape as well as two dramatic event orders (curiosity and surprise) with different persuasive effects. So far, these narrative expression elements' effects are merely conceptual; therefore, we propose and test new relationships.

Methodology

Our procedure mined 190,461 reviews of 989 experiences consumed in Las Vegas. We conducted a computerized text analysis of *n*-grams of multiple word lengths. A set of *n*-grams in a text is the set of all distinct sequences of *n* words (Vásquez, 2014). In support of our analysis, we relied on the Linguistic Inquiry and Word Count (LIWC) software program. LIWC matches texts to word categories, classified in lexica. LIWC provides matches as an intensity: a fraction of the number of words in the designated text. Since Pennebaker et al.'s (2007) quantitative operationalization, more than 120 studies have employed the software (Tausczik & Pennebaker, 2010). We used validated LIWC lexica, which Pennebaker et al. developed and call "dictionaries", as a starting point from which to operationalize our narrative elements. We included positive feedback as the narrative persuasion variable measured by consumers' thumbs-up gestures.

Results, Discussion and Contributions

We report the control variables and narrative elements. Regarding the effects of the control variables on positive feedback, the effects of review age (β = .39, SE = .04, $p < .001$, IRR = 1.48), extremity (β = .20, SE = .03, $p < .001$, IRR = 1.22), sentence length (β = .09, SE = .02, $p < .001$, IRR = 1.09), and reviewer expertise (β = .18, SE = .02, $p < .001$, IRR = 1.20) were significant. The effects of review eloquence (β = .02, SE = .01, $p = .245$) and readability (β = –.01, SE = .01, $p = .410$) were not significant. For the narrative content elements, we found that more landscape of affective consciousness (β = .02, SE = .01, $p < .05$, IRR = 1.02), landscape of cognitive consciousness (β = .01, SE = .01, $p < .05$, IRR = 1.01), spatial embedding (β = .03, SE = .01, $p < .05$, IRR = 1.03), and temporal embedding (β = .14, SE = .01, $p < .001$, IRR = 1.15) significantly increased positive feedback. For the narrative expression elements, we find that reviews coded as comedies (β = .03, SE = .01, $p < .01$, IRR = 1.03) or tragedies (β = .03, SE = .01, $p < .01$, IRR = 1.03) received more positive feedback than reviews of other genres. Furthermore, a significant effect emerged for drama: the earlier the climax occurs, the more positive feedback (β = –.02, SE = .01, $p < .05$, IRR = .98). Thus, our research provides three contributions to the narratology and WOM language literature:

First, we externally validate the influence of a comprehensive set of narrative content elements on narrative transportation and persuasion. Essentially, the previous results have been found in the laboratory (Dunlop et al., 2010; Kaufman & Libby, 2012) without extending to field work. Adopting computational linguistics, we conduct a custom computerized text analysis of n-grams of multiple word lengths on an online corpus. Moving beyond Humphreys and Thompson's (2014) unigrammatic procedures, we organize the relationships among words and sentences and assess narrative content's influence on consumer behavior in a realistic market setting.

Second, we develop genre as a narrative expression element to account for narrative transportation post entry into the narrative world. We provide evidence for Vonnegut's (2005) argument that the experience of a genre whose emotional story shape changes during story reading boosts narrative transportation more than genres whose shapes do not alternate in sign. As such, we question the adequacy of the previously accepted negativity bias (Ludwig et al., 2013; Wu, 2013; Yin, Bond, & Zhang, 2014) by calling for its substitution with a new organizing proposition rather than merely claiming that the influence of reviews' emotional polarity is completely incapable of being captured.

Third, we show that drama is a narrative expression element that further stimulates consumers to remain transported. Complementing Cowley's (2014) work on climax intensities' effect on storytelling consumers, we show that the earlier the emotional climax occurs, the more the experience review transports and persuades story-receiving consumers.

Implications for Theory and Practice

Our findings provide several insights into the narrativity of experience reviews and consequential persuasion. They explain how narrative-related, textual elements lead to positive feedback. Overall, the significant narrative elements fall into two categories: (1) narrative content elements (characters and plot) and (2) narrative expression elements (genre and drama).

Paraphrasing T. S. Eliot (1942), at the end of our exploration, we arrive where we started. We observed that some experience reviews affect consumers within and beyond their hosting site, and we tried to understand why. Transportation theory helped answer this research question. Though narrative content ignites these reviews' engines, it is narrative expression that provides liftoff.

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